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ON

CHANGE OF AIR

IN

THE PREVENTION AND CURE

OF

PULMONARY PHTHISIS,

BY

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PREFACE.

The first edition of this work was a reprint of a somewhat hastily written paper in the Medical Mirror for 1864. Its circulation has been the means of bringing to the author's notice much interesting and striking evidence confirmatory of the truth of the views he has put forth; the main substance of these being to shew that what is called a bracing air is more constitutionally curative of pulmonary consumption, than one that is in a marked degree relaxing, and that the less lung a person has to breathe with, the more important is it that the air inhaled should be as bracing and tonic as can be borne if the nutrition of the body is to be duly maintained.

The observations of the great army surgeon, Larrey, and others, quoted in these pages, will shew that these ideas are not new, and in these days when so much stress is laid on the tonic treatment of consumption it seems but reasonable to make a tonifying and invigorating climate assist the action of nutritious diet, cod-liver oil, and strengthening medicines.

Care has been taken to indicate, as clearly as possible, the sort of cases that may form exceptions to the above rule, and in which the palliative effects of relaxing air are advisable.

Since some of the most cheering and satisfactory effects of change of climate are seen in increase of appetite and digestive power, it has been thought well to append a short chapter on the diet and regimen of the phthisical, especially as much has been added of late to our knowledge in these matters that is of practical utility.

If some things in this chapter seem commonplace truisms known to everybody, the excuse must be, that though known, and approved, they are still much neglected in the practical life of the invalid.

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15, Queen Anne Street, Cavendish Square.
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Chapter I.

Pulmonary phthisis not a disease of cold climates. Relative mortality from phthisis in the Army and Navy. Beneficial effect of sea air. Rarity of consumption on the N.W. coast of Scotland. Elevation of districts. Climate of Mexico. Exposure to open air preventive of phthisis. The disease common in many warm places, as Italy and the West Indies. Damp air most injurious.—Practical rules.

In all affections, whether acute or chronic, of the lungs and air-passages, attention to the state of the atmosphere which surrounds the patient, and is therefore in constant and intimate contact with the diseased surfaces, is a matter of the very first importance.

The physician, when called to a case of acute bronchitis or pneumonia, usually makes his first directions for treatment emphatically to bear on the regulation of the temperature of the patient's chamber, and means are at once taken to ensure free ventilation consistently with the maintenance of a due degree of warmth, and such an amount of moisture in the air as any special exigencies of the case may seem to demand.

In the more chronic pulmonary affections, as phthisis, asthma, emphysema, and chronic bronchitis, the selection of an air and climate suitable for the invalid to reside in, is always a matter of anxious consideration. How can we reasonably expect to see a case of active phthisis, with great irritability and spasm of the air tubes, and frequent intercurrent inflammations, improve, while the patient is hourly drawing through his intensely susceptible chest a keen and cold, though doubtless highly bracing air; and, on the other hand how often do we see disastrous results follow on the removal of a patient, languid, exhausted, and perhaps far gone in actual pulmonic softening, to one of those humid, enervating, dyspepsia-breeding climates once held in high repute for the cure of pulmonary consumption of every kind and in every degree.

The object of the following pages will be to offer to the reader a few remarks on change of air as a means of preventing, alleviating, and curing phthisis, and to afford aid in forming a judgment from recorded observations and experience as to what appear to be the best conditions of climate to cure or mitigate the disease in its various forms and stages.

Enquiring, in the first place, as to the sort of climate and atmosphere in which pulmonary consumption, or phthisis, is most apt to arise and make progress, we shall find good evidence to shew that this disease is by no means one peculiar to cold regions; for while in some of the cold and most exposed parts of the globe the disease is almost unknown, there are regions well known to be sheltered and warm, where phthisis is very frequent in its onset, and rapid and relentless in its progress.

The following observations, by various authorities, will tend to shew how free some of the cold regions of the North are from the prevalence of phthisis, and also how this disease appears to decrease in frequency with increase in the elevation of a district above the level of the sea.

In an interesting work by M. Boudin, chief surgeon of one of the military hospitals in Paris, we learn that there are countries where phthisis is quite unknown, as for instance, Iceland; no phthisical patients are seen in Finmark; and the

Swedish physicians affirm that consumption becomes less common as we proceed northward; there is, in fact, such a thing as a preventing action in the Polar regions.

In England, army statistics show that the English soldier is more often a prey to phthisis in his own country than in any other. In the United Kingdom, the Infantry of the Line lose annually by phthisis 8·9 men per 1,000, and the Guards 12·5. At Malta, the mortality is below 5 per 1,000; at Gibraltar, the Mauritius, and Ceylon, 4; at the Cape, 3; and in the Madras Presidency, 1.*

In the navy the general mortality from phthisis is much lower than in the army, being on an average, for all the various stations, about 2·3 as the ratio per 1000 of mean force.

The constant inhalation of the fresh sea air, together with the manual labour constantly required of seamen, are doubtless powerful causes in diminishing the frequency of pulmonary consumption among this class of the community.

An eminent hospital physician, and author of "Clinical Lectures," once told me that were he to be afflicted with signs of incipient phthisis he should seek a cure in a prolonged cruise on the sea in a yacht. I have myself known instances where a voyage to the Arctic regions in a whale ship has proved in the highest degree beneficial; fresh sea air of a most bracing and tonifying kind being continually inhaled, while at the same time the style of living on board was most free and sumptuous; and it is not difficult to understand how, in a patient whose vitality was getting low, and yet who had spirit enough for a whaling expedition, the failing nutrient powers might be wonderfully restored by such decidedly tonic treatment, and the signs of threatening consumption averted.

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* The Lancet for 1857, page 90.

The great observer Laennec, was of opinion that sea air was antagonistic to the development of phthisis, and more recently this opinion has been confirmed by the observations of Dr. Verhaeghe* of Ostend who shews that while in the deaths in the interior of the country there are 19 per cent from phthisis, in the hospital at the sea port of Ostend there are but 6·60 as the per centage from the same cause. That sea air may, in certain states of lung, prove irritating, is a point to be alluded to and illustrated hereafter.

With respect to the civil community of Great Britian, it may be observed that among the deaths in London those from phthisis are 18 per cent; in Edinburg, 11·9; Leith, 10·3; and Aberdeen, 6·2.†

Further northward still the disease seems remarkably uncommon, for Mr. Keith Johnston writing in the Med: Chir: Review for 1857, observes; "that the opinion long intertained, that phthisis is a disease peculiar to cold climates is quite erroneous, for the disease is almost unknown in the Arctic regions, Siberia, the Orkneys, Shetlands, and Hebrides." The almost complete exception of the Faro Isles from consumption is specially noticed also by Dr. W. P. Alison in the Edinburgh Medical Journal for November 1855, and Dr. J. E. Morgan in the Brit. and For. Med. Chir. Rev., 1860. draws attention to the rarity of phthisis along the N.W. coast of Scotland, as established by his own observation and that of others.

In alluding to the possible causes of this immunity, Dr. Morgan considers the most efficient of these to be the way in which the Highland cabins are constructed, and the fact of their being warmed by means of peat-fires, the inhalation of the peat smoke seeming in a marked way to prevent and check the development of pulmonary tuberculosis.

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* See Syd: Soc: Year Book 1859, p. 222.

† The Lancet for 1857, page 90.

In Oban where coal is chiefly used as a fuel, phthisis is by no means uncommon.

Fuchs shows, from extensive data, that in Northern Europe phthisis is most prevalent at the level of the sea, and that it decreases with increase of elevation to a certain point. At Marseilles, on the seaboard, the mortality from this disease is 25 per cent.; at Oldenburgh, eighty feet above the level of the sea, it is 30 per cent.; at Hamburg forty eight feet above the sea it is 23 per cent.: while at Eschevege, four hundred and ninety-six feet above the sea level, it is only 12 per cent.; and at Brotterode, eighteen hundred feet above the sea, it is but 0·9 per cent. It is calculated that in the temperate zone at least one-tenth of the population die of phthisis, and it is uniformly more fatal in cities than in the country. In England, the excess in cities is equal to 25 per cent.

Dr. Gastaldi is another observer who bears witness to the preventive and curative influence of mountain air over pulmonary phthisis, and Dr. Mühry a German writer on climates, seasons, and elevations, lays great stress on the respiration of the air of elevated districts as a means of promoting that free and complete expansion of the air cells of the lungs, which is such a very important desideratum for the prevention of phthisis. The effect of breathing the rarified air of highly elevated districts is to cause great expansion of the chest in consequence of the large volume of air required for the purposes of respiration. In a recent article on the climate of the table land of Mexico, lying from 3000 to 8000 feet above the level of the sea, the air of this upland district is spoken of as being very trying to those not accustomed to it, while the natives, and those able to bear a process of acclimatization to this atmosphere, are remarkable for the immense development of chest which they acquire in consequence of the necessity there is for breathing a large volume of this rarified air in order to obtain enough oxygen for the requirements of the system.

In Mexico one travels for miles at the height of Mont Cenis, the St. Gothard, or the Gt. St. Bernard, enjoying an air which Englishmen and Frenchmen call mild, though the Spaniards are inclined to think it keen and cold, and for those in whose lungs there is active disease, all allow that this air is too sharp and exciting.

We can understand from these remarks, the use of the climate of a very elevated district, to cause free development and expansion of the lungs, but where disease is in active progress it is easy to see how this expansive process may increase irritation and so add to the danger and mischief; hence we should infer that these very lofty regions are better adapted to prevent the development of threatening pulmonary disease, by causing free expansion of the chest, than to cure it when it is in active and acute progress.

In the American Journal of Medical Science, Dr. Flint has furnished the details of 24 examples of arrest of phthisis that have occurred in his own practice, and added interesting observations upon the circumstances which seemed to favour such arrest. In five cases in which the disease was thus arrested the sole treatment consisted in causing the individuals to abandon sedentary occupations for those entailing abundant out-door exercise; and eight others, in whose cases the disease after a time spontaneously came to a stand still, were persons of active out-door habits.

"The exercise in the open air" (says Dr. Flint) was not generally of the kind which often goes by that title, consisting in simple airings by gentle walks or drives; but it consisted in rough occupation, involving at times great exposure to vicissitudes of weather."

Change of climate occurred only in two cases prior to evidence of arrest. On this subject of climate Dr. Flint has been led to believe (with many others) that "climate in itself exerts no special agency in determining an arrest of the disease, but that it may favour this result indirectly by affording better opportunity for exercise in the open air, and furnishing objects of interest to the mind which will secure that object.

The above quoted remarks, from such a careful and experienced observer, are most important; experience from the time of Sydenham has been continually showing how out door exercise, especially when taken on horse back, can break through a constitutional tendency to consumption, and can even aid most powerfully to arrest the disease when it is fairly in progress. Sydenham used to say that horse exercise was as much a specific for incipient consumption, as was bark for the ague, and the late Dr. Parrish of Philadelphia believed that he cured himself of consumption by travelling on his rounds in a vehicle without springs, using this as a substitute for the saddle itself.

We see now from the foregoing observations, collected from various trust-worthy and competent authorities, that pulmonary phthisis, is a comparatively rare disease in Northern regions, where the air is pretty uniformly cold and bracing, and rare also in those regions which are situate at considerable elevation above the level of the sea; nor is the disease often met with among those persons whose occupations cause them to spend much time employed in the open air.

It remains next to examine into the prevalence of phthisis in the warmer quarters of the globe, and then to take a glance at those social conditions of life most conducive to the production of this same disease.

Dr. Pollock, in his lectures in the Lancet for 1856, speaking of climate and its relation to phthisis, says, that there is no region of the earth absolutely free from this disease. "In the West Indian Islands it is met with in its most severe and rapid form, and in Italy, the country to which so many consumptive invalids are exported, it is a disease of universal prevalence and great intensity," as Dr. Pollock has himself witnessed, "so that the Italians regard the disease as contagious and malignant."

We must remember here however that the habits of the people in this part of the world are not the most conducive to the cure of pulmonary disease, bad ventilation within doors, poor diet, and want of attention to cleanliness of the skin, doubtless contribute to hasten the progress of phthisis when once developed.

Among the Swiss, it has been noticed by Dr. H. Weber, that phthisis is not often found among the men who are continually out of doors among the mountains, but among the women who keep indoors and do not get much air and exercise, the disease is very frequent.

The great prevalence of phthisis in the West, as opposed to the East Indies, has been noticed by Staff Surgeon Hunter in the Med : Times and Gazette for 1850. In the East Indies where the climate is dry, the disease is almost at its minimum, and Dr. Hunter especially recommends, Poona, in the Bombay Presidency, also Madras and Bangalore as places healthy as England in most respects, and eminently adapted for the generality of phthisical invalids. Of Bombay; and the Malabar coast, generally, he speaks less favourably. In alluding to the ravages of consumption in the West Indies, Dr. Hunter draws attention to the island of Madeira, which, though not very far from the islands of the West Indies, contrasts strongly with them in climate, for while these last islands are in the full sweep of the trade winds, Madeira lies out of the "trades" and not within what are called "the variables" but in a mild equable marine atmosphere sheltered on the west by its own mountains and receiving on the east wind that has blown over the warm coast of Africa, hence the S. E. side of this island is much frequented as an admirable winter climate for the consumptive.

The remarkable uniformity of the barometric and thermometric range in Madeira was specially noticed by my friend and colleague Dr. Southey when spending a winter in that island.

We have now seen that phthisis may be very rare in the cold and elevated part of the globe, and very common in some of those regions which are warm and sheltered, but of all the climates to induce the disease, none can equal one that is at once damp and cold.

The temperature and pressure of an atmosphere loaded with watery vapour will be liable to considerable variations, since aqueous vapour is the chief fluctuating ingredient in the air, and hence is by no means a safe atmosphere for the consumptive invalid.

Sir J. Clark observes that "of all the physical qualities of the air, humidity is the most injurious to animal life," and Forcault considers dampness in the air to be the great cause of phthisis and also of intermittent fever.

Hence one practical rule to be deduced from the observations that have been made that the phthisically disposed will do well to follow, is to endeavour to have a residence on a dry soil, and at a moderate elevation where there will be free circulation of air, and to avoid places lying low where the air is damp, stagnant and cold.

We now proceed to notice the social relations of life under which lung disease is prone to arise and advance.

CHAPTER II.

Sedentary employment conducive to phthisis. Bracing air part of tonic treatment. Sedative air at times very useful. Indications for a mild climate. Short notice of some of the mild climates. South Devon,—Torquay, Rome, Pisa, Pau. A few words on Arcachon. Local chest symptoms not be too exclusively regarded. Case.

THE report of the deaths in England and Wales, by the Registrar General for one year, gives about twelve out of every hundred deaths to pulmonary consumption as the general rate, but in cities, as has been already stated, this per centage is very much higher.

A glance at some of the following figures will shew the relative mortality from phthisis in town and country.*

In Hertfordshire the mortality from consumption is 179 in 100,000 annually; it is 363 in 100,000 Liverpool; 331 in 100,000 in Manchester; 277 in 100,000 in London; 100 in 100,000 in Norway.

The causes of this excess of mortality in the large towns is to be found in the sedentary employment of the inhabitants, and the close and impure air which of necessity they are compelled continually to breathe. In illustration of the tendency of a close and confined atmosphere to produce pulmonary consumption the following table compiled by Dr. Guy will be of interest. The table is based upon measurements of the offices of letter-press printers, and the number of compositors working in them, together with the answers of certain simple questions addresssed to the men themselves.

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* From remarks on phthisis by Dr. Drysdale, in 'Medical Mirror,' March, 1865.

	Number per cent spitting blood.	Subject to catarrh.
104 men having less than 500 cubic feet of air to breathe.	12·50.	12·50.
115 men having from 500 to 600 cubic feet of air.	4·35.	3·48.
101 men having more than 600 cub. ft. of air.	3·96.	1·98.

Of 652 cases of undoubted phthisis observed by Dr. Pollock, 393, more than half, were individuals following sedentary indoor employments; conditions which, as Dr. Pollock observes, imply two things which are preeminently conducive to phthisis—want of fresh air, and a minimum of muscular waste and renewal. In those of the phthisical poor who, whether from choice or by necessity, confine themselves entirely to one small close room, the progress of their disease is truly fearful to witness, and our most approved remedies absolutely worthless.

Observations of my own, made on a small scale, and over a limited area, confirm the above statements. With respect to the influence of the air of crowded cities, I have noticed in hospital and dispensary practice how, among the poorer classes, phthisis has commenced its attack soon after the individual, previously resident in the country, had settled in some of the more densely populated regions of London, and I have been struck in more than one instance with the marked improvement which has taken place on the patient quiting town to go for a season into a country district reputed even damp and cold, but where the air would be purer and fresher than it could be in the courts and alleys of London.

When the remove has been to a healthy part of the country, the improvement has been proportionably much greater.

In the case of some, who from living in a close atmosphere have got into a low state of vitality, I have noticed a tendency to congestion of the upper third of one or both lungs; a very incipient stage of tubercular disease perhaps, that is surely and speedily removed by tonics and pure air.

With respect to elevation of a district, I may say that I have had frequent opportunity of observing the great prevalence and rapid progress of phthisis in many country villages lying low and damp, as compared with others which are placed higher, and where consequently the air is not so stagnant and humid.

In some of the districts with which I am familiar, lying north of London, and said to be about on a level with the cross on the top of St. Paul's, phthisis is quite a rare disease as compared with its prevalence in those parts of the north-eastern, eastern, and southern districts, where the level is very much lower.

More than one instance of striking and lasting, improvement in cases of unmistakable phthisis has come under my notice in the case of persons who have removed from low-lying country districts to the more elevated situations.

When we consider that pulmonary consumption is in the majority of cases a disease of debility, and specially, as I believe, in its earliest stages, of debility and exhaustion of the nervous force, we can quite understand the benefit likely to accrue to the patient from dwelling in a pure fresh air which increases the appetite and powers of digestion, stimulates the free and perfect expansion of the lungs, and thus promotes the formation of healthy blood and the nutrition of the whole system.

Moreover, under such physiological conditions of existence, medical treatment by cod-liver oil, chalybeates, and other tonics, will have far greater efficacy than it would have under other circumstances, inasmuch as in a dry bracing air these remedies will be readily digested and assimilated by the system, while in a relaxing warm atmosphere they nauseate the stomach, disorder the liver and often have to be laid aside entirely.

While thus recommending the bracing air of elevated districts as a very important item in that general tonic treatment which experience is daily showing to be the best method of counteracting the tendency to tubercular disease, it must not be understood that every kind and degree of pulmonary phthisis is to be cured by bracing air, any more than by any regular routine of tonic medicine. In some forms of phthisis iron is a priceless remedy; while in others I have seen it prove most injurious, and so that dry bracing air, which is the best of tonics for very many, indeed for the generality, of cases of phthisis, is absolutely intolerable to others differently constituted or in a different stage of the malady—a matter which I now proceed to consider and illustrate more in detail.

We must always bear in mind, in dealing with such a disease as pulmonary phthisis, that we have in the first place to overcome a morbid constitutional tendency in the system; and, secondly we have to combat with symptoms of local disease as manifested in the lungs.

The attainment of the first of the objects above named should be the aim of a rational system of medicine; and provided the actual destruction of lung substance be not great, the probability is, that in the treatment best adapted to remedy the constitutional vice, we find the best palliatives for actual chest symptoms themselves.

The various preparations of. iron, or some of the mineral acids, will often speedily cure a cough, which has been daily getting worse in proportion as the stomach has been drugged, truly *ad nauseam*, with ipecacuanha, squills, paregoric, and all the whole genus of expectorants.

Expectorants and sedatives are useful, indeed invaluable, at times, as adjuvants in combating special symptoms, but growing experience shows that it is to the plan of tonic and invigorating constitutional treatment that we must look as the great method for the prevention and cure of phthisis in far the majority of cases.

Just as however we find in our medicinal treatment of consumption that there are times and seasons in the course of the disease during which the local symptoms of bronchitic irritation are so predominant as to oblige us to lay aside tonics, and use, for a time, some of the various sedative and expectorant remedies, so we find in the treatment of the disease by climate certain cases, and certain periods of the complaint, requiring the soothing influence of a mild and relaxing air, and in noticing some of the health resorts for the phthisical in England and abroad, I purpose first to notice those climates which are reckoned warm, sedative and relaxing and the use they have in the treatment of consumption. Examples of this kind of climate air to be found at Torquay, Penzance, Rome, Pisa, Pau, and the Azores; places spoken of by Dr. Walshe, in the appendix to the second edition of his Treatise on the Diseases of the Heart and Lungs, as possessing in varying degree a soft relaxing air, moderately high thermometric range, and most suitable to pulmonary and cardiac affections attended with irritability of the skin and mucous membranes and little disposition to general constitutional languor.

The south-west coast of England and of this specially the south-coast of Devon has been much resorted to by invalids, and is a typical example of a mild climate suitable to a certain class of chest diseases.

The climate is warm, being on an average, in the winter, five degrees warmer than London, the air is decidedly relaxing and humid; in some parts, as for instance Sidmouth, it is positively damp.

Torquay is drier than any other part of this coast, free from fog, with a calm and equable air, and is in great repute as a residence for pulmonic invalids. The mild relaxing air of this district appears to be beneficial in cases of dry irritative bronchitis, and bronchitic asthma, with much painful spasms of the air-tubes, coupled also with irritation of the digestive organs and harshness and dryness of the skin. In some cases of phthisis, especially among females, we find the nervous system very irritable, and the slightest change of temperature is apt to cause much pain and dyspnœa; unquestionably the milder climates relieve these painful symptoms and render life more endurable, and probably, therefore, more prolonged.

*Dr. Shapter, of Exeter, gives as the result of his very extensive experience of the climates of the south-west coast, that it appears to act favourably in cases of great pulmonic irritability, sometimes found associated with the onset of tubercular disease of the lungs. In cases also of inflammatory or gastritic dyspepsia, the climate usually suits well, especially if this form of dyspepsia be associated, as it frequently is, with a harsh, dry, inactive skin; for the warmth and humidity of the air tend to encourage that transudation from the skin which is the result of the vital action of the cutaneous surface itself. The relief also which the lungs experience when a dry skin is induced to moderate action is great, for matters are thus safely eliminated from the system which would otherwise be deposited on the lungs to form tubercles. The observations of Mr. A. Toulmin, in "The London Medical Review," February, 1861, on the functions of the skin in reference to tubercular consumption, may be here named as worthy the attention of all those interested in the prevention and cure of phthisis.

Rullmann, in "The Dublin Journal of Medicine," for 1861, considers that the mild climatic sanatoria of southern districts are useful as winter residences in the chronic bronchial catarrh and chronic tuberculosis of patients from more northern districts. Summer in these regions is often most

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* Dublin Med. Quarterly, 1863, p. 441.

injurious by developing and aggravating pulmonary mischief.

The same writer goes on to say, that the cases best suited by a moist and warm climate are attended by a very sensitive condition of the bronchial mucous membrane, frequent cough, dry, or possibly attended with viscid expectoration, and an excitable state of the vascular and nervous systems.

Thus it appears that authorities agree pretty well as to the use to be made of a mild relaxing climate in the treatment of pulmonary affections.

As a winter resort, a mild and equable air is soothing to an irritable chest, and possesses the advantage of enabling the invalid to get out-of-door exercise daily, without being exposed to a sudden alteration of temperature on quitting his warm apartment; and this is a matter of no light moment, for when the phthisical invalid is obliged to keep whithin doors, and so get but little really fresh air through his lungs, his actual chance of recovery is but a poor one, though the local symptoms of pain, cough, and dyspnœa may be mitigated. Correct as I believe the above indications for a mild air to be, as far as actual chest symptoms may go, I would nevertheless urge strongly that these local symptoms be not regarded to the exclusion of other general symptoms and conditions. The climate in which the invalid had been living when his disease first appeared, his own sensations as dependent on the air in which he dwells, the progress to better or worse that he is making, the condition of the appetite, digestion, and general nutrition, the action of the skin, and other secretory functions, and the mental and moral aspects of the case, must all be anxiously considered in selecting a resort for the phthisical invalid.

That in these mild climates phthisis may arise and make progress I have lately had illustration in the instances of two patients now under observation: one of these, a female, had phthisis set in with hæmoptysis, cough and emaciation while living in the south of Devon; the other, a young man, dwelling near the same locality, but no relation to the first patient was also the victim of advancing phthisis. These two patients have now for some time been resident near London, and have most certainly improved, the man has notably gained in flesh and strength.

Now both these patients had been from their birth resident in a relaxing climate. While there, phthisis declared itself in a most unmistakeable way, and thus far we are able to observe, in one of them at all events, an apparent arrest of the disease by a removal north of London, exemplifying one rule of practice in the choice of a climate, to which I have always been disposed to pay much regard: it is, to remove the consumptive patient to an air as different as possible in its characters to that in which the disease first declared itself, and in which it seems to be advancing. As we further consider and illustrate the good and bad effects of change of climate on the phthisical invalid, we may have occasion to refer again to this rule as a guide to us in practice.

Another practical point worthy of attention is, that when a patient has got well of his phthisical symptoms in any given air, be it bracing or the reverse, it will be wise for him in his future movements to try and keep always to the same kind of air, and not to let his wanderings lead him to a place merely because he hears it has a name as being good for those diseased in the lungs. My friend, Dr. Symes Thompson of the Brompton Hospital, has told me of a very instructive case where a patient, apparently cured of phthisis by the bracing air of the South of France, several years subsequently had all the evil symptoms return on going for a winter to Torquay; a removal northward was soon followed by improvement.

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* The female patient I have since lost sight of, the other is in fair health.

Where the indications, as already noted, are for a mild and somewhat sedative winter climate, in which there will be but little risk of catching cold and so increasing laryngeal irritation and active chest disease, I do not think a better, or safer place, can be found than Torquay. The invalid can if desirable, be close to the sea-shore, or can make his choice of various degrees of elevation around, and a moderate degree of elevation has seemed to me to suit best; the soil is dry, with good drainage, and yet the air is sufficiently humid to temper it to the requirements of an over-sensitive mucous membrane, and the patient who suffers much with irritation of the larynx, and loss of voice in the cold and who has active sub-inflammatory phthisis going on in his chest, will be as safe to get through the winter comfortably as he well can be in an English climate.

Should the patient however, who presents the above noted symptoms of severe laryngeal and pulmonic irritation, be for leaving England altogether he will do well to think of Madeira as likely to afford him a complete and salutary change.

Dr. Southey found that it was rare for the temperature of the coldest nights, in the part of Madeira close to the sea, to fall below 58°, and should this sea level prove too warm and relaxing any degree of elevation above it can be obtained up even to a region of snow.

About Funchal the air of Madeira is humid and relaxing, but free from fog and very soothing to irritable lungs, and it is rare that the rain fall prevents a daily opportunity for exercise on foot or on horseback; these matters, coupled with the sea voyage which the transit involves, form good recommendations of Madeira as a winter climate for a large number of the phthisical.

Of other similar mild climates I believe Rome, and Pisa, to be two of the best and safest, I have known a patient unable to stand the bracing air of the coast of Provence, after spending a few months at Rome till the signs of chest irritation were in a measure quieted, return again to the South of France and then derive great benefit from the air of Cannes and Hyères. Just as when, in our medicinal treatment of phthisis, by the temporary use of sedatives we remove bronchitic irritation, and then build up the constitution by means of ferruginous tonics.

The climate of Pisa approaches somewhat to that of Madeira; it is more moist than Rome and is eminently soothing and antiphlogistic; in the dry bronchitis of old people, and in incipient phthisis with much bronchial irritation and spasm, it is for a season at any rate, a useful climate. Mr Mathews, in his "Diary of an Invalid" (a book in which some of the continental sanatoria, as Naples and Nice, are pretty strongly denounced) says "I believe that Pisa is the very best place on the continent, during the winter, for complaints of the chest." In summer and autumn Pisa is to be avoided and in the second stage of phthisis it is like all relaxing places, most pernicious.

Another much frequented winter resort, to which it is estimated about *2000 English invalids, most of them phthisical, annually go, is Pau, and a few words on this place and its air will not be amiss here.

Pau stands on a gravelly soil 700 feet above the sea on a sort of terrace facing the Pyrenées, and is very completely protected from winds, hence, as Sir J. Clark observes, "calmness is the striking character of the climate." The mean annual temperature is four and a half degrees higher than that of London, and the average rain fall at Pau is 40 inches, while in London it is 27. Notwithstanding this large fall of rain, the ground, from the nature of the soil, drys fast, and the air is not reckoned damp, for steel articles do not rust, and uninhabited houses never show any signs of damp.*

The climate of Pau is reckoned equable, and in this respect superior to Rome and Pisa. In diseases attended with an atonic relaxed state of system, it is a climate likely to act prejudicially.

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* Dr. Taylor on Climate of Pau, 2nd edit., 1856.

Dr Madden, of Dublin, in a valuable book on climate, published in 1864 as the result of large experience with carefully recorded observations, devotes a chapter to Pau but is unable to bear testimony to the uniformity of its temperature, and with respect to humidity as denoted by the hygrometer, Dr. Madden finds Pau to be about on a par with Kew near London. During November 1861, the mean moisture of the air by the hygrometer was 82° at Pau compared with 85° at Kew; and in December it was at Pau 83° and at Kew exactly the same.

Not very far from Pau on the south west coast of France and accessible by railway, is situate Arcachon, a place fast rising into well-deserved repute as in every respect good for pulmonary invalids.

During one very severe winter at Arcachon Dr. Hameau, the resident physician, found the thermometer only fell to freezing point four times in December and three times in February. With all the advantages of a good sea air Arcachon is protected from severe gales by moderately high sand hills, and all around it are thick pine woods, the terebinthinate emanations from which impregnate the atmosphere and have a salutary effect over diseased lungs.*

In England the nearest approach to such an atmosphere as that of Arcachon will be found on the Hampshire coast at Bournemouth.

With respect to the places I have mentioned as affording examples of a sedative and relaxing air, I would say that from what I have myself observed, and gathered from the observation of others, I believe the actual curative power of these relaxing climates, whether in England or abroad over true phthisis to be very limited, though sometimes in certain stages of the disease, where there is much susceptibility and bronchitic irritation about the chest, their effect may for a time be of great service. In many cases of asthma and dry chronic bronchitis the effect of these sedative climates is most strikingly beneficial and curative.

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* See Dr. Corrigan's address to the College of Physicians of Ireland (1860-61).

One reason why both in England and abroad so many of the relaxing climates have come to be regarded as essential to the continued existence of all and every one afflicted with phthisis, in no matter what stage, is, that very often the local symptoms of pain, cough, etc. are much relieved by the inhalation of a warm moist air and this mere mitigation of symptoms is regarded too exclusively, so that the patient is often retained in a relaxing climate till it begins to act most injuriously as a depressor of the general constitutional vigour. Then again, as has been already said, cases of asthma and chronic bronchitis get well often in a relaxing air and these are apt to be set down as instances of genuine phthisis cured by climatic influence. The condition of the appetite and digestion I believe to be a more trustworthy guide and indicator of progress, than the mere chest symptoms alone.

The following case will illustrate how a too exclusive regard to the mere local chest symptoms, some years ago, led the writer of these pages into error, in advising a change of climate to an invalid. The patient was a gentleman of experience in climates, tall, thin, and of highly nervous temperament; he had lost a sister with phthisis, and after a rather sharp attack of pneumonia, decided symptoms of the same disease attacked him, and by the advice of Dr. Williams he left this country to travel abroad; he spent the summer in Switzerland having passed the previous winter at Rome and Pisa. I met him at Cannes in the south of Franco, whither ho had come for tho winter; he then had a small cavity at the upper part of one lung, a good deal of expectoration, and now and then a little blood tinged the sputa; the appetite and digestion were feeble, and there was a good deal of general debility. The result of this gentleman's experience of climate was to him disappointing and unsatisfactory; at Nice he had suffered much from pain at the chest and difficulty of breathing, but, after staying at Cannes, he improved considerably, and could take and digest a fair amount of cod-liver oil.

Though improving in general health and strength, the lung symptoms did not show much amendment, and it seemed that a change to the mild, relaxing air of Pau might now be a judicious move. The event proved otherwise; and, referring to letters now by my side, which I received on his arrival at Pau, I am struck to see how soon the change of air seemed to produce a bad effect. Langour of system, inability to take the cod-liver oil, loss of appetite and increase of debility, were the prominent symptoms, while, at the same time, the expectoration and cough increased, and things turned quite for the worse. In this instance the patient felt convinced he should do better and feel his chest easier in a milder air than that of Cannes, but I shall not be soon persuaded again to let a phthisical invalid, who is feeding well and gradually gaining bodily strength, go from a dry, bracing air to one that is relaxing and mild, because he may at times fancy the former to be rather trying to his chest. In the instance of another patient of whom I have lately heard, a similar change was followed by quite as unfavorable a result.

The change from such a climate as that of Cannes to the sedative air of Pau is a decided one for an invalid, as will be seen by comparing the climate of Pau with that of Cannes, Nice, Hyères and Provence generally, and this will bring us to consider the effect of bracing climates over pulmonary disease.

Chapter III.

Dry and bracing climates. South of France. Nice, Cannes, Hyères. St. Remo, Illustration of good effects of air of Cannes. Sea air at Cannes apt to irritate. Malaga. Upper Egypt and the Nile. Illustrative cases.

The general nature of this climate of Provence lying east of Marseilles is that of a dry, warm, air with more or less of stimulating and exciting quality; an admirable climate for cases of phthisis and chronic bronchitis, attended with copious exhausting discharge, and much general atony of system, but severely trying to nervous and excitable persons, bringing on often an actual attack of nervous fever in those who do not modify their habits of diet and regimen to suit the peculiarities of this exciting climate.

For young children with languid circulation, pallid faces and tendency to glandular enlargements, this climate is strikingly beneficial; also in many cases of atonic dyspepsia with hypochondriasis and rheumatic tendency, the salutary effects of the air of this part of the coast, and especially of Nice, are well displayed.

For pulmonary cases I consider Cannes and Hyères to be superior in most respects to Nice, for of the individual places along this coast, it is in the part of Nice lying nearest to the sea that the most exciting air is found, and here, too, the temperature is apt to vary suddenly and considerably; so that it does not appear the best of places for the pulmonary invalid. A patient who had passed a short time at Nice for the benefit of a pulmonary complaint, told me not long ago, that on quitting the place for Cannes, she found after crossing the Var, the air so much more agreeable to her chest, that she could not help remarking to her companions on the ease and comfort she felt; a foreigner, who seemed to have made the journey before in company with English invalids, told her he had frequently heard similar expressions of relief from those who were quitting Nice for the somewhat milder air of Cannes and Hyères.

At these two last-named places, and especially at Hyères, we find an air dry, warm, and exciting, but more equable and not so highly stimulant as the air of Nice. It is an air eminently suitable to cases of phthisis attended with profuse secretion and much langour and exhaustion of system; it is moreover, highly beneficial to cases attended with sluggish circulation and tendency to glandular enlargements and tumours.

Dr. Mc Carthy, of Paris, has informed me of a lady under his care for most obstinate swelling and ulceration, some considered even of malignant kind, of the cervical glands, who obtained a complete cure after a few months spent at Cannes.

In cases of confirmed and advanced phthisis the effect of the air of Cannes, as a climate intermediate between Hyères and Nice, is most satisfactory, many cases recovering completely from a most serious state of chest disease. M. Girard, the chief Pharmacien of Cannes, was in his youth, when a student in Paris, given over by Louis, as a case of hopeless phthisis, and advised, as he valued his life, to migrate to the south; he did so, and is now strong and healthy, and while carrying on a large business at Cannes, has found time to write a work "Cannes et ses Environs," in which will be found much useful information from the pen of Dr. J. C. Séve, and also from that of Dr. Whitley, the English physician at Cannes. Speaking of Cannes, Dr. Séve, says: "*Il semble vraiment que cette résidence ait été crée tout exprés pour les poitrinaires, lymphatiques, et scrofuleux;*" and he records several instances of remarkable and permanent recovery that he has seen effected by this climate in most severe cases of phthisis. Some of these patients, it is noticed, were quite unable to remain, though but for a few hours, near to the sea, for the air even of a calm tideless sea like the Mediterranean, seemed too irritating and exciting for them; it caused cough, pain, and hæmoptysis, all of which unpleasant symptoms where relieved as soon as the patient got among the pine woods on the surrounding hills.

The late Dr. Davis remarked, long ago, how the people of Provence and Nice always removed their pulmonic invalids from the sea coast to place them among the pine forests on the hills, where they might inhale the balsamic emanations from these trees.

In the spring months the "mistral" wind is often severely felt at Cannes, and also at Hyères; then St. Remo affords a sheltered, but tonic atmosphere, for an invalid to resort to until summer sets in. St. Remo has seemed to me superior in most respects to Mentone.

I must refer my reader for further information respecting the climate of this coast and the Riviera to very useful and instructive accounts of the district, and of Mentone in particular, given to us by Dr. Henry Bennet and the late Mr. Price.* With respect to the general immunity of the district from phthisis, I would just quote the experience of M. Richelmi, who for thirty-four years practised among its inhabitants; he reckons the population of Monaco, Mentone, Villefranche, and St. Remo, and some other places on the coast, to amount to 76,000 souls, and of 7,000 deaths in this number, only 107 where due to pulmonary consumption.

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* "Mentone and the Riviera as a Winter Climate," by J. Henry Bennet, M.D., 1861. "The Climate of Mentone," by P. C. Price, Esq. F.R.C.S., Med. Times and Gazette, 1862, pages 53—78. Also the "South of France," by Dr. Edwin Lee, and a very inviting description of the country of the Riviera, by the Dean of Canterbury, will be found at page 243 of the March No. of "Good Words," for 1864. In the March and April Nos of the Medical Mirror for 1865 is an interesting account of a winter at St. Remo, by Dr. P. James.

Other dry bracing and stimulating climates, somewhat similar to those we have just been describing, may be met with at Malaga, Malta, and Algiers. I have heard phthisical people speak very highly of these climates, but the absence of the usual comforts of home has been named as a drawback; an annoyance that, in the case of confirmed invalids, outweighs any peculiar advantages of climate.

Dr. Madden, after passing more than one winter at Malaga, observes that the dry tonic air of the place will work wonders in most cases of incipient consumption, with cachectic and languid state of the system; some cases too where the disease is advanced will, for a time, improve in a remarkable way at Malaga.

In irritative bronchitis the air is, as we should expect, too dry and exciting, and it is a perilous place for those affected with this kind of complaint; in humoral asthma, on the other hand, and in bronchitis with much secretion, and general relaxation of system, the air of Malaga is likely to suit admirably.

The mean annual temperature of Malaga is 65°, or 15° higher than London, 9° higher than Pau, and 7° lower than Cairo. In winter the mean is 55°, being the same as Algiers, and the summer mean is 78°, this being one degree higher than Algiers, and 8°, higher than Pau.

At Cannes the mean annual temperature is 60° and in January, the coldest month, the thermometer keeps very steady between 46°, and 48°. The annual number of rainy days at Cannes is 52, at Hyères 40, and at Nice 60,* hence invalids have abundant opportunity for being out of doors, a point of much moment to them in promoting their cure.

An eminently dry, warm and stimulating climate is that of Cairo, and this part of Egypt may be resorted to by young persons in whom incipient phthisis is slowly and insidiously progressing with every prospect of great benefit, but in cases where there is liability to febrile attacks, and pulmonary congestion with dry hard cough and frequent hæmoptysis, the climate is far too exciting.

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* See Madden on climate.

The best time of the year for Cairo is from October to March. The climate of the Nile generally as far as Thebes, which is 300 miles south east of Cairo, is warm, dry, and equable, though at times cold winds are felt, and the patient on arriving first at the river is apt to suffer from transient disturbance of the digestive and biliary functions, especially if, in spite of the wise advice of Dr. H. Bennet, he has been travelling in the "cannon ball style," making the transition from one climate to another with more haste than wisdom; but when used with resonable precautions the climate of the Nile can do much certainly towards overcoming a very decided tuberculous tendency in the chest, as I have observed in a well-marked instance.

In advanced phthisis with ulceration of the lungs, I should by no means advise an invalid to get as far from home as Upper Egypt, for any good the climate might do him, and this exceedingly dry atmosphere is adverse to the healing of an ulcerated mucous or cutaneous surface.

In the two following cases it will be observed how the patients, both of whom were injuriously affected by mild and and humid climates, got great benefit from change to the dry air of Upper Egypt—one was the case of a clergyman afflicted with most severe and persistent bronchitic asthma, and utter loss of all appetite and strength, to whom the air of Cairo and the Thebaid proved most beneficial, though by the moist air of Alexandria this patient's distress was much increased, and his dyspepsia seriously aggravated. Another phthisical patient, whose sufferings were aggravated during a winter at Madeira, removed to the Thebaid with most prompt and decided benefit.—See Rev. T. Barclay, in "Edin. Med. Surg. Journal," 1854, p. 656.

CHAPTER IV.

English Climates.

THE distinctions between climates that are tonic, dry, and bracing, and those that are sedative, humid and relaxing are more clearly marked, and consequently more advantageously studied in the instances of those foreign health resorts the general climatology of which has been briefly sketched, than they are in the instances of the sanatoria of England and its coast, where climatic differences merge more into one another and have distinctions less pronounced and decided. Hence it is, that in studying the effects of climate on pulmonic invalids I have drawn my illustrations chiefly from foreign climates; a word may now be said of some of the English climates, and their capabilities as sanative resorts for those diseased in the lungs.

Reference to the following description of the climate of the British Islands, as given by Prof. Daniell in his Meteorological Essays, will shew why it is that the climate of these Islands is so uncertain and variable, and therefore not well adapted for people with delicate chests.

"The British Islands are so situated as to be subject to all the circumstances which can possibly be supposed to render a climate irregular and variable. Placed nearly in the centre of the temperate zone, where the range of temperature is very great, their atmosphere is subject, on the one side to the impressions of the largest continent in the world; and on the other to those of the vast Atlantic Ocean. Upon their coasts the great stream of aqueous vapour, perpetually rising from the western waters, first receives the influence of the land whence emanate those condensations and expansions which deflect and reverse the grand system of equipoised currents. They are also within the reach of the frigorific effects of the immense barriers and fields of ice, which, when the shifting position of the sun advances the tropical climate towards the northern pole, counteract its energy, and present a condensing surface of immense extent to the increasing clasticity of the aqueous atmosphere."*

Such are the scientific explanations of that well known variability of the climate of Great Britain which causes so many English invalids to forsake their own country and seek some of those warmer and more equable climates to be found in other quarters of the globe.

Happily for those whose means and inclinations prevent their trying the curative powers of foreign air and soil, there are to be found in the islands of Britain, climates, sedative, bracing, or intermediate, that are very well adapted for the summer or winter abode of the phthisical.

The sedative climate of the South West Coast, and the special indications for its use in certain cases of pulmonary disease have been once noticed and it is not necessary to add much more on the subject.

The general winter temperature of this S.W. coast is about two degrees higher than that of the coast of Sussex and Hampshire, and from three to four degrees higher than that of London. The atmosphere generally is soft, humid, and relaxing, very good during the coldest months of the winter for those in whom symptoms of general feverish irritation predominate with harshness and dryness of the skin, irritative or subinflammatory dyspepsia, and tendency to laryngeal disease, loss of voice, dry tight cough, and painful difficulty of breathing in the slightest cold. The suitability of Torquay as a winter coast for the above class of patients has been already alluded to; the arrangements of the dwelling houses, detached, and at varying elevations, and the dryness of the soil with good drainage,* are matters to which my attention has been drawn as rendering this place very suitable for the winter quarters of invalids requiring a very mild climate.

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* Daniell's Meteorological Essays, p. 114, 2nd edit.

The South Coast of England, lying between Hastings and Portland Island, is an intermediate climate, being less warm, and also less relaxing than the South Devon Coast, and yet not so bracing as some of the places to be named presently.

On this part of the coast is Bournemouth a well sheltered place, surrounded like Arcachon in France, with pine woods, the emanations from which, in warm weather, are thought to have a beneficial effect over diseased lungs.

Further East along this coast are other well known places; among them the Isle of Wight presents a mild, equable, and dry climate well adapted for the residence of pulmonary invalids during the year. From my own experience, and that of others, I can adduce instances of most striking improvement induced in phthisical patients by the dry and tonifying air of this Island.

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* The influence of efficient drainage in diminishing the mortality from phthisis in Towns is exemplified in the case of Salisbury, where the deaths in the close by phthisis in 7 years prior to the institution of good drainage were 286 as compared to 143 in the 7 years subsequently —Lancet 1864. p. 381.

Ryde, and Cowes, on the north side of the Island, have seemed to me admirable summer quarters for the invalid, and during the winter, from November to the Spring, a change can be made to Undercliff and Ventnor, if the patient finds it too cold for him to be much out of doors on the North Coast of the Island.

Cases of bronchitic asthma I have found to be more comfortable, and make better progress, at these last named places than at the part on the North about Ryde.

The air of St. Leonard's, despite of the severe winds that often prevail there in the spring, suits many consumptive patients well as a bracing marine air, those who find St. Leonard's too much exposed can easily obtain a more sheltered situation by removing to Hastings where the air is considered milder and rather relaxing.

It should be observed generally, that the air both of St. Leonard's and Hastings, is very strongly, what may be called a marine air, and further that the sun light on this part of the coast is very intense.

These two conditions may be adverse to patients with much irritability in the chest, and tendency to quickness of pulse with febrile excitement, for a strongly marine atmosphere impregnated with saline particles is apt to increase some forms of chest irritation, and the effect of bright sunlight is, as has been shewn by Dr Edward Smith, powerfully to excite and quicken the pulse.*

Among the decidedly bracing climates of the British Isles, I should place the west coast of Scotland, where, as we have seen, consumption is an unknown disease; and a summer spent in sailing among the islands there would be a remedy well worth the trial of any who could afford such an agreeable and efficacious mode of cure. My own belief is, that a consumptive invalid, after spending all the months of the year from May to September in such a climate as that which exists between Rothsay and the Northern Isles of the Western Hebrides, would find any previous apprehensions he might have been feeling as to where he should winter, reduced to a minimum, so much would he have gained in health, strength, and spirits, during the summer thus spent.

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* See Assoc. Med. Journal, 1856, p. 256.

From what I have observed of the effect of the strongly bracing air of the Yorkshire, and Norfolk coasts, in cases of genuine phthisis, I cannot but think highly of these parts, as often very beneficial during summer to the consumptive; while in the winter even, they are not so hazardous as might be thought. Not very long ago I had an opportunity of seeing consumption fairly in its second stage in both lungs arrested in a most extraordinary way, by the patient going and fearlessly encountering, the east winds of spring on the coast of Norfolk.

This patient, when I saw him, was expectorating much, had a languid circulation, but good appetite and plenty of nerve and spirit, the physical signs on both sides of the chest were so marked and serious, that I feared to let him go far from town and advised Tunbridge Wells, as a dry and bracing place near London; however this patient went off to the east coast of Norfolk, and I have seldom seen pulmonary symptoms so promptly and decidedly checked by any remedy as they were in this case by a strong and bracing air.

Among the inland climates of England, we have at Clifton a dry warm and bracing air making this very suitable as a general place of residence for the consumptive, and other places more powerfully tonic and bracing may be found at Malvern, and Harrogate, well known health resorts, and at the first named of these places I have seen consumptive patients derive much benefit after the air of a warmer place had failed to bring the least relief to the bad symptoms.

The short notices of different health resorts, of name and repute, that have been given in the foregoing pages, have been intended merely to point out the general features of the climate and to illustrate its effects on the different kinds and stages of pulmonary disease, and not to serve as regular, and special descriptions, of each place individually.

The point I have been most anxious to make clear is, that because a place is very sheltered, with a warm, humid and relaxing air, it is not necessarily for these reasons to be at once set down as a first-rate place for all who are consumptive, and that the more advanced the stage of the disease the more important it is for the enfeebled patient to be kept closely to one of these warm relaxing languid spots. Far from this being the case I believe that the only chance of life for one who being decidedly in an advancing consumption, is not getting better, and perhaps getting worse, in a warm air, is at once to make a change to a bracing and colder air, and not to fear if at first he may possibly have a little increase of cough and tightness at the chest for a day or two after making the change.

The cases in which I have known decidedly curative effects to be produced by a strong and bracing air, have been those of persons very far gone, according to good authority, in phthisis, and who had been sent to the mildest and most relaxing parts of the English coast, in the belief that here alone they could exist. One case obtained permission to go for the hot months of the summer to a very exposed and cold part of Hertfordshire, intending to leave for Rome in the winter; the effect of the summer air was so renovating to the exhausted system, that the patient remained in the same spot all through the winter, appetite and strength returned, and by the next summer complete recovery had taken place.*

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* Baron Larrcy, the great army surgeon of Napoleon I., has gone so far as to say that it is "a fatal error or rather a pernicious prejudice, to imagine that warm mild climates cure pulmonic disease. In the advanced

In another case a patient who was dying of phthisis, in the most sheltered part of Hastings, left to go to her home in Lancashire with but little hope of continuing her existence, she got perfectly well, and probably remains so now, after the lapse of several years.

However strong our feelings may be in favour of a bracing rather than a relaxing air for the consumptive, we must on no account forget the great importance of daily exercise out of doors, for the curative effect of free exposure to the open air in cases of true consumption is great, as I have myself proved in more than one good instance.

In the Brit. and For. Med. Chir. Review for July, 1864, it is told how Dr. James Blake, of San Francisco, caused seven consumptive patients to spend a whole summer constantly in the open air at an elevation of from 3000 to 5000 feet above the level of the sea, in a region where no rain falls for 5 or 6 months; they ate, drank and slept out of doors, literally "*sub Jove*," and all gained in weight and in strength, and seem to have been cured, though previously the usual remedies had been tried without benefit.

Such being the beneficial effect of open air life, we must endeavour to find a climate where the invalid can, without pain and distress to his chest, and without risk of getting

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stages of phthisis, atmospheric heat does harm, and accelerates the fatal issue."—*Med. Chir. Rev.*, 1845, p. 59.

With the phthisical out-patients at Victoria Park Hospital, I have been much struck to see how much better they seemed to be during the frosts of the winter than during the languid heat of August. Dr. Risdon Bennett has informed me that this is the general experience of the physicians of the hospital.

"The warmest of our summers are as injurious to the consumptive especially the advanced cases, as the cold of winter," says Dr. Wood, of Philadelphia.

Dr. Chapman, of the same city, says "I am well persuaded that to the consumptive the effects of intense heat are more baneful than those of severe cold."—*Wood's Practice of Medicine*, vol. II. p. 93.

wet and chilled, be much in the open air, and then the more bracing the air that can be borne without discomfort the better.

To ensure a good chance of being much out of doors, an invalid should endeavour to ascertain the average number of rainy days in the year at the place whither he purposes to go; and should also find to some extent how the temperature varies. Merely to know the mean temperature is of little use, for two places may differ very widely in their extremes and yet may both have the same mean; hence the amount of variation should be noticed between morning and midday, and day and night, and the less difference there is between the out-door and in-door temperature the better.

Other matters requiring attention, especially by those going abroad, are, the accommodation afforded to invalids, the nature and kind of food to be obtained, &c.; for without attention to these matters the life of an invalid abroad will be one of utter misery and wretchedness. From what I have myself seen of serious cases of consumption that I have met with abroad seeking relief in foreign lands, I would earnestly advise that no really bad, and advanced cases of that disease, should try a climate distant from home unless able to take with them friends, servants, and physician to be constantly at hand.

In conclusion, I would commend the study of climate and its effects on invalids, pulmonary and other, to the investigation of those, who in these days of facile locomotion, are led to visit various parts of this and other countries. Meteorological observations, highly interesting and useful as they are, should not be the exclusive means of investigation, but to these should be added carefully recorded results of the way in which invalids eat, drink, and thrive, under certain conditions of climate, "as yet we are," to quote the words of Dr. Walshe, "wanting in precise observations on invalids themselves, and till this want be supplied, attempts at fixing the climate fittest for any particular form of disease must often result in disappointment. Nevertheless, some general truths have been acquired to guide us, and one of the most important of these appears to be, that the anatomical condition and presumed intimate nature of the affection are less faithful guides than the state of the organism generally, and the liking of the individual, in the selection of a dry and bracing or a moist and relaxing climate."

Chapter V.

On the Diet and Regimen of the Phthisical.

Sir James Clark in his treatise on Climate, (page 245) says, "I would strongly advise every person who goes abroad for the recovery of health, whatever be his disease, or to whatever climate he may go, to consider the change as merely placing him in a condition the most favorable for the removal of his disease, and to bear constantly in mind that the beneficial influence of travelling, of sailing and of climate, require to be aided by such a regimen and mode of living, and by such remedial measures, as would have been necessary had the invalid remained at home."

Without due attention to this advice the effect of the best chosen climate may prove disappointing to both patient and physician, and as an endeavour towards the prevention of such mischance I have thought it would not be out of place here to append a short chapter on the diet and regimen of phthisical patients. The following remarks are designed to be short, and as much to the point as possible; more ample information can be well obtained from those recent treatises, which have within the last few years, come forth from the medical press at the hands of the Drs. E. Smith, Richardson, and Horace Dobell.

Patients, generally, are pretty well impressed with the importance of endeavouring to overcome the debility consequent upon the inroads of phthisical disease by taking into the system plenty of food of the most nutritious kind, but in doing this they have not always due regard to the capabilities of the digestive organs for rightly disposing of the mass of nutrient matter with which they are loaded.

Too often, in these cases, the oppressed stomach is goaded to put forth extraordinary efforts by a very free allowance of alcoholic stimulants, and when there is a quantity of semi-digested aliment lying in the stomach there is no doubt that steeping this in alcohol tends to prevent, to some extent, fermentation, flatulence and acidity, and thus gives relief to uncomfortable feelings; but taken in this extensive way alcohol rather retards, than promotes, the healthy digestion of the food.*

The great point to bear in mind, while using our best endeavours to sustain the strength by means of nutritious food, is, that the body generally is nourished by what is digested and properly assimilated, and not merely by the amount of nutrient matter that can be got into the stomach.

Some, unquestionably, make better blood and build up firmer tissues, from a diet of milk, eggs, and farinaceous food, than they do when they are fully supplied with all manner of flesh meats and plenty of alcoholic drinks; so that in arranging the dietary of an invalid, the general state and constitution must be considered, and that food will prove most nutritious which is most acceptable to the stomach and most easily digested therein.

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* On this point see Brinton on the Stomach, 2nd Edit. p. 337.

Another point to be borne in mind, is, that a man digests with his arms, legs, and lungs, as well as with his stomach.

Air and exercise cause the assimilation of nutrient matter into healthy tissues, and, without these two important adjuvants to perfect digestion, much unassimilated nutrient matter is expelled from the body in the nitrogen of the fœces (as has been well proved by Dr. Edward Smith in his experiment on prisoners) or, if retained, is only converted into some of the products of unhealthy and imperfect metamorphosis such as the lithic acid of gout, or the quasi fibrinous matter of tubercle and struma, the first of these depositing as chalk stones of lithate of soda in the joints, the second in the lungs causing their destruction by softening, and the third more rarely in the lungs, but often in the bones, joints, and glandular system, leading likewise to the destruction of these parts of the body.

Dr. Gairdner, who lays great stress on respiration as a nutrient process, says, "Aeration of the blood in the lungs is the source of the fibrin; by exercise fibrin is carried forward to the tissues, and by exercise, air, and moderation in diet, such constitutional diseases as Gout, Tubercle, Struma &c, may be avoided and cured; without these means it is vain to look for more than temporary palliation and suspension of the most acute symptoms of the disease."

To shew how blood-globules and fibrin are elaborated, under the influence of free nutrition and active exercise, Dr. Gairdner had three rabbits abundantly fed for many days, and their blood examined. Rabbit No. 1 was allowed free exercise, Nos. 2 and 3 were kept confined. It will be seen by the table that while the albumen varied little, the more highly elaborated principles, the globules and the fibrin varied considerably, most fibrin and globules being formed where there was most air and exercise.

	Albumen	Globules	Fibrin	
Rabbit No. 1	50·20	97·40	2·10	in 1000 parts
,, 2	49·	80·50	1·75	
,, 3	48·20	75·43	1·96	

In the Proceedings of the Royal Society, Vol. xii. pp. 399 and 505, Mr. A. H. Smee shews, by experiment, how fibrin is produced by the direct action of oxygen on albumen, this formation of fibrin being accompanied by the evolution of sulphur, phosphorus, and carbonic acid. Mr. Smee shews also how albumen, artificially digested in gastric juice, produces fibrin by its subsequent oxidation.

Gluten too, when oxidized, appears to yield fibrin.

Under the influence of improper diet, and imperfect aeration it is this fibrinous element of the blood which degenerates into scrofulous, or tuberculous matter, and is deposited as such in the various organs of the body as has been stated already.

The close chemical analogy between tubercle and that substance called protein, which forms the basis of the nitrogenous, or flesh-forming elements of nutrition, Albumen, Casein, and Fibrin is seen in these comparative analyses as given by Dr. J. G. Atkinson, of Wakefield.

	Carbon.	Hydrogen.	Nitrogen.	Oxygen.
Protein	43	35	6	13
Tubercle	48	36	6	14

Tubercle therefore differs but little in chemical composition from that body (Protein) which is looked upon as a most important and essential flesh-forming principle of the system; and the mere loading the stomach with abundance of food will be no protection whatever against the inroads of the worst and most rapid form of consumption unless by due exercise in the air the nutrient matter is properly elaborated and laid down to replace those tissues which are used up, oxydized, and carried out of the body.

A certain amount of waste of tissue is essential to its proper nutrition and renewal, and it is also very essential that the products of the used up and wasted tissue, be carried out of the system by the various emunctories such as the lungs, skin, liver, kidneys &c.

Let all these conditions of waste, removal and renewal, be well fulfilled and the development of tubercle is almost impossible.

To deduce from the foregoing observations such practical conclusions as will enable us to tell each individual how much tissue he wastes per hour, and how much and what kind of food will exactly compensate him for this waste, is a matter to which none would pretend to attain, and, if attained, would render a pair of scales, a graduated measure, and perhaps sundry other scientific appliances articles absolutely essential at the meals of the invalid. Without going to this extreme however, the research of scientific men, and among the first of Dr. Edward Smith, have guided us to a good deal that is of practical utility and importance in ordering the diet of patients in various stages of pulmonary disease.

In chronic phthisis, the first point demanding attention is the state of the digestive functions, and no better criterion of a certain climate agreeing with a patient can be afforded than by his finding the air make him hungry, and his meals render him cheerful and strong.

To one, who while presenting signs of incipient tuberculosis in the lungs, is yet able to take plenty of exercise, and complains little of anything like dyspepsia, I believe that a free and liberal range of diet is not only safe, but advisable, and the less curiously intent the patient is to whatever he puts into his stomach the better; provided always that the food from which selection is made, be of a simple and nutritious kind, excluding rich pastry and all such highly seasoned made dishes as tempt the palate to overload the stomach thereby doing immense mischief.

With respect to solid animal food, free choice of fish, flesh and fowl may be allowed, but whatever be the kind, the more simply it is cooked the better. Thus fish is better boiled than fried, and done thus the various kinds of white fish may be often taken. Shell fish generally are objectionable as being hard of digestion, with the exception of oysters and these cooked or uncooked are well adapted as an article of diet for the phthisical.

Of meats, beef and mutton should take the first place, and these meats will be better roasted than boiled, care being taken that they are not in either case overdone. Chops and steaks can be stewed occasionally by way of a change.

Of other meats, and of poultry, game, and the like, there need not be much said, they form a list from which an invalid need not be debarred should he incline to them. Game in a high condition however, and meats that have been salted are best avoided, the first is apt to cause diarrhœa, and the second is very difficult of digestion and at the same time of small nutritive value to the system.

Among salt meat however an exception should be made in the case of fat bacon; this may be freely given to those able and willing to take it, indeed fat generally being a most important calorific, and respiratory food, should enter as much as possible into the diet of the consumptive. Many, unfortunately, have a great repugnance to anything in the least degree oily or fatty, while a few can take fat and oils in a way that is astounding. One patient of my own in the second stage of phthisis appears as if he could live on the fat of beef, while the smallest piece of lean meat brings on acute gastric disturbance. I have observed that these great consumers of fat and oil stand well against their disease, they are well able to turn to good use the calorific elements of nutrition and thus save excessive waste of tissue; others, less fortunate, turn the fat into butyric, and other noxious acids, and from these it must be withheld, as doing harm rather than good, till the digestive organs have learned to make a better use of it.

With the chief meal of animal food it will not be well to mix much food of vegetable and farinaceous kind, for these substances will distend the stomach and will also absorb much of that gastric juice which is wanted for the perfect digestion in the stomach of the fleshy part of the food.

Hence but little bread, and that stale, or unfermented, and but a moderate quantity of one or two kinds of well cooked vegetables should be taken with the meat, and afterwards nothing more should be allowed than a small pudding of bread, rice, corn flour, semolina or the like.

Such fruits as grapes, strawberries, and perfectly ripe peaches, pears, and apples are good, for these introduce into the system citrates, malates, and other salts of vegetable acids which by becoming changed into alcaline carbonates in the blood tend to check undue acidity of the system and to clear and purify the blood.

The danger of these fruits, taken moderately, inducing diarrhœa is more fancied than real.

The chief meal of animal food is best taken at midday so as to allow of some exercise out of doors afterwards, this taken a couple of hours or so after the meal, will stimulate the flow of bile into the duodenum just at the time when it is wanted there to digest the oleaginous matters which pass out from the stomach, and the same exercise will also give play to the lungs and thus relieve the liver from being unduly oppressed with the carboniferous elements of the food which it has to convert into bile.

When, of necessity, the chief meal of animal food must come very late in the day, alcoholic stimulants should be used sparingly, and two hours after the dinner tea should be taken, for this, unlike alcohol, promotes the elimination of carbonic acid from the lungs and so aids the latter part of the digestive act. After such a late meal, before finally retiring, a glass of Seltzer, or Fachingen water will be of service to correct and remove any acidity remaining about the digestive organs and when the heart is feeble a little brandy added to this will often ensure a good night's rest.

With respect to the drink taken at meals, there are but few of the phthisical that do not eat and digest the better for the use of some amount of stimulant with their meals; those who find digestion to proceed better without the aid of stimulants, most certainly should avoid them and take water or toast water with their meals.

For one who is able to eat freely of meat at his chief meal, and take exercise afterwards, good stout or Burton ale will be a nutritious, and not unduly exciting drink, and in this case the patient should keep to plain bread and meat, soups and much of vegetable or farinaceous food being avoided, and the patient thus dieted and using plenty of exercise will be following the beef steak and porter plan of treatment so largely and successfully pursued many years ago by Dr. Stewart of Erskine in cases of consumption.

Those with whom malt liquors do not agree but who digest better with the aid of some stimulant should take sherry, weak brandy and water, or such a drink as claret or burgundy taken alone or with water; after the meal, either of these two last wines or port may often be allowed with benefit.

Some persons may find the light white wines of Germany, of Hungary, or of Austria, to agree better than the red, and such experiments as have been made tend to shew that these white wines tend to augment excretion while the red wines and especially the Bordeaux wines retard waste of tissue and check excretion.

To debar the patient from all forms of alcohol seems good only in certain cases to be hereafter alluded to, for practical experience points decidedly to the value of alcohol to the majority of the phthisical.

Taken in moderation it aids the digestive process, and further than this it supplies carbon to the system, in a state apt for oxidation, thus saving too rapid and undue waste of tissue.

Dr. Flint in his account of 24 cases of arrest of phthisis by simple dietetic and hygienic treatment, while noting the value of a free and liberal diet, comes also most unhesitatingly to the conviction that wine, beer, and spirits, not only aided the digestive process but also seemed in a marked way to check the progress of the disease.

The numerous, but sad cases, that are recorded of individuals who in early youth have been tuberculous, but who have nevertheless lived to become drunkards and to die in old age of delirium tremens, prove strongly the value of alcohol as preventive and curative of consumption.* My own belief is that the Scylla into which these unhappy people fall is worse than the Charybdis they avoid, and that it is better to die in early youth of consumption than to live a life of tippling and die in old age of delirium tremens or of some chronic disease of the brain the result of alcoholic poisoning. Happily however to obtain the good effects of alcohol in phthisis there is no need to bring our patients even within sight of the abyss of intemperance.

The limits of these pages prevent my going further in illustration of the preventive effect of alcohol over phthisis. Used moderately it will do much good in cases were the signs of exhaustion are marked, it will tranquillize the nervous excitement of debility and so check excessive waste of tissue, and taken in moderation at meals it will aid in the digestion and assimilation of food and especially of cod liver oil and fat generally. Never should it be taken in any form on an empty stomach, for then it will cause thickening and induration of the cellular tissue of the stomach walls, and eventually induration and cirrhosis of the liver.

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* *Incidit in Scyllam qui vult vitare Charybdin.* For one instance see the case of Keith who died of alcoholic mania in the Edinburgh Infirmary at the age of 50, having been at the age of 23 given over to die of consumption. A large cicatrix in the right lung shewed the process of cure that had taken place. Hughes Bennett's Practice of Medicine, p. 719, 3rd. Edit.

With respect to the form of alcohol to be used, a word more may be said. Rum is, of spirits, the best, provided the liver be in good and healthy action; Dr. E. Smith has shewn that rum has great power of increasing the exhalation of of carbonic acid gas by the lungs, differing notably in this respect from brandy and other alcoholic fluids: hence theory inclines us to advise the use of rum, and the practical experience of patients is that rum taken with water, or with milk, is a drink of sovereign virtue in quieting cough and relieving great exhaustion.

Dr. Kempt has seen such great benefit arise to the phthisical from the use of rum that he has written a paper on rum as a cure for consumption.

Passing to non-alcoholic fluids we find in tea a drink which like rum, causes a free elimination of carbonic acid from the lungs (Dr. E. Smith) and it is a drink on which a word may be said.

Tea is best taken two or three hours after the chief meal of the day, it then promotes the digestive process eliminates excess of carbonic acid by the lungs and acts also on the liver and kidneys.

Where the habit is to take a full meal late in the day, tea should be preferred to coffee for breakfast on the next morning.

Dr. E. Smith finds a large cup of cold tea very useful to relieve the profuse night sweats of phthisis, here it gives relief by promoting more free exhalation of carbonic acid by the lungs and more complete oxygenation of the blood.

Coffee, a drink containing an essential oil, is more suitable to some hysteric and nervous temperaments than tea.

Cocoa, is a nutritious non-stimulating drink much used by invalids and taken for breakfast, or for lunch, with plenty of milk and sugar it is admirably adapted for the phthisical.

In milk we have all the most important elements of nutrition, the saccharine azotized, and the fatty well blended together, and as a general rule the more milk a phthisical patient will take the better.

In some few cases, with irregular action of the liver, milk, in every form seems to disagree and is often vomited in the shape of hard lumpy curd. Here it may be tried mixed with an equal part of lime or soda, water, but even this admixture does not always enable the stomach to digest it. Donkey's milk forms a light nutritious food for children who are disposed to consumptive disease.

Some are able to take fresh cream with pleasure and benefit, but I believe in the majority of cases skimmed milk will agree and be digested better than any other form and may be very freely given by night as well as by day in small quantities at a time to check excessive sweating. The skim milk. as well as new milk, can be taken with one or two tablespoonfuls of rum on first waking in the morning, it will relieve the exhaustion so often felt at that time, and will prevent that undue excitement of the pulse which Dr. E. Smith* has shewn always to occur when the consumptive patient rises early without taking a little nourishment first.

Milk made into a more or less consistent jelly by the addition of Carragheen or Iceland moss is highly nutritious, and soothing to an irritable mucous membrane, hence where there is tendency to diarrhœa this jelly will be found useful.

The Carragheen moss should be soaked for ten minutes in cold water and then to 24oz of milk may be added 1½ drachms of Irish moss, ½ oz of loaf sugar, and 1 scruple of Canella or Cinnamon; this mixture should be boiled till it becomes thick and when cold it will be about the consistence of cream. By adding more of the moss a firmer jelly is obtained. In the Danish Pharmacopœia the proportions given for Carragheen-mos-Gelée are 2 drachms of moss to 12 oz of milk.

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* Paper read before the Royal Med. Chir. Society.

The British Pharmacopœia gives as the proportions for the decoction of Iceland moss lichen, moss 1 part; water 30 parts; boil for ten minutes and strain.

Mr. Squire recommends for a pure jelly of this moss :

Iceland moss 1 part; water 10 parts; boil down to 6 parts, strain and add sugar 2 parts. The resulting compounds are demulcent and nutritious and well adapted for cases of debility with pulmonary or gastro-intestinal irritation.

The whey of milk, apart from the curd or casein, is well known as an article of diet for the phthisical, and has the credit of having worked cures.

The Prussian Pharmacopœia gives directions for preparing three kinds of whey as follows :

1. An ounce of the dried stomach of the calf is infused with six fluid ounces of cold water for twelve hours. One ounce of this liquor may be added to nine pounds of fresh cows milk, the mixture gently warmed, and the whey then strained off.

2. Boil three pounds of milk and add one drachm of cream of tartar; when the coagulation as complete strain off the sour whey and boil with some white of egg beaten to a froth until the albumen is coagulated, strain the whey from this and neutralize its acidity with prepared chalk.

By using a drachm of powdered alum in place of the cream of tartar an astringent alum whey is produced, useful in cases of hæmoptysis and diarrhœa.

Where the diet consists chiefly of milk and eggs such farinaceous food as arrowroot, corn flour, oswego and the like* may be advantageously associated with it, and at times when the patient is kept much at home from hæmoptysis or diarrhœa an exclusive diet of that description of food may be advisable and indeed necessary and the effect of such a light diet in quieting the circulation, arresting hæmoptysis or diarrhœa and relieving congestion of the liver is often very satisfactory, the patient at the same time partially or entirely giving up all stimulants. By taking beef tea and broths thickened with biscuit powder, or cerealina he may then gradually return to the use of animal food.

To lay down precise rules as to the amount of animal food, of alcohol, or of milk to be taken per day is impossible. Some will do best with but one meal of animal food while others, and especially those who are young and growing, do better with two or even three serves of animal diet.

Whether the chief food be fleshy or farinaceous, fat and butter should enter largely into it for the reasons already given, sugar too is of value as a respiratory food, provided it does not generate acidity of stomach.

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* Among farinaceous foods there is one called "Cerealina" that deserves to be more generally known and used. It was originated by Dr. Brown of the United States, and consists of meal prepared from wheat; containing all the ordinary nutritious matter of wheat flour, and in addition a large amount of gluten (an eminently nutritious principle) which is left adherent to the grain, in the special process by which the bran is separated from the wheat in preparing this cerealina.

In the ordinary process a good deal of gluten is removed as an inner coat of the separated bran, so that M. Herpin found he could by simply washing the bran, extract from it 50 to 60 per cent of nutritive matter, and he was induced in consequence to suggest that in making ordinary bread a cold infusion of bran should be used in place of water.

A few years ago Mr. S. Bentz invented a process for debranning wheat without removing the gluten with the bran, and the ground meal of this wheat forms "Cerealina" a verv digestible, nutritious and economical form of farinaceous food that suits phthisical patients remarkably well.

In cases of hæmoptysis a special plan of diet is essential. Every form and kind of alcohol, I am convinced should, except under urgent need of its administration, to avert death, be withheld. Animal diet in the solid form should be laid aside and the patient kept to a milk, egg and farinaceous diet, till all signs of active bleeding have ceased. Iced water acidulous drinks, alum whey, toast water, and tea with slices of lemon in it, are the best drinks under these circumstances for the patient.

In cases of advancing phthisis where the night sweats are profuse and exhausting, associated often too with troublesome diarrhœa it is of no use to keep the patient to regular meals, he must be fed often during the day, and at intervals during the night also, and the food must be varied, eggs with milk or with wine or brandy, light animal jellies and nutritious soups thickened perhaps with sago or tapioca or biscuit powder, skimmed milk, and milk with lime water, soda water, or with Iceland or Irish moss, being the chief dietary resources for an invalid in these trying times. The feeding at night with skimmed milk, or with cold tea, removal of superfluous coverings and proper ventilation of the bed rooms are important means to check the exhausting sweats as already noted.

The scope of this little book does not admit of more than these general hints and remarks on diet, the great thing to be remembered is, that in curing a disease of mal-nutrition like phthisis we must make diet, air, and exercise, go hand in hand if we are to do the patient good. The first two of these great means of nature's cure have been already discussed, and little more need be said of exercise, save that the patient should not go out fasting, nor directly after food, he should avoid wet and night air, and then he will do well to be as much out of doors as possible. Walking, riding on horseback, with due care to keep the extremities warm, gentle rowing in a boat, or riding in an open carriage are all means of varying the outdoor exercise.

When wet weather obliges the invalid to remain in doors, he should not remain too long in one room, and should exercise his arms, and so promote full and deep inspiration, by the use of dumb bells or a hand swing, or he may try the newly-invented India rubber "Gymnast" of Mr. Hodges, a very simple contrivance easily adapted to strong or weak people as a means for the varied exercise of all the limbs.

In all forms of exercise excess of fatigue is to be carefully avoided, and early retirement to rest is advisable with early rising in the morning; care being taken to administer food of some kind equally early in the day.

Where there is tendency to night perspirations, these may be in a degree mitigated by taking sleep during the day and rather less at night, for day sleep Dr. E. Smith finds not to depress the pulse so much as night sleep, and the depression of the pulse at night is one great cause of the exhausting sweats. Food late at night, and in the night, by keeping the pulse more in proper ratio to the respiration also prevents sweating as has been already stated.

Attention to the functions of the skin by external bathing, warm or cold according to the constitutional vigour and power of reaction of the individual, is very necessary and the occasional use of the Turkish bath I have found of great use, in the early stages of phthisical disease; moderation in its use is to be inculcated, for some finding great relief are apt to resort to this bath too much till it becomes actually debilitating to the system.

I have let these remarks on diet and regimen run to a greater length than was at first contemplated, and much might yet be said on the subject. The treatises which I have named in this chapter will give more ample information, to those who desire it, on this very important subject.

Too often we see the consumptive invalid going from one physician to another and taking abundance of cod liver oil, with tonic, sedative, expectorant, and astringent mixtures, useful and good enough in their way, but on no account to be regarded as the only means by which phthisis is to be arrested, for the legitimate sphere of such remedial measures as these is in reality quite secondary and subordinate to those powerful and efficient means of prevention and cure which nature offers to the invalid in the shape of fresh air, proper food and free exercise.